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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/626,662   | 07/25/2003  | Chien-Chang Wang     | 3313-1018P          | 1817             |
| 2292   | 7590        | 05/25/2004           | EXAMINER            |                  |
| BIRCH STEWART KOLASCH & BIRCH<br>PO BOX 747<br>FALLS CHURCH, VA 22040-0747 |             |                      | NGUYEN, HANH N      |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2834                |                  |

DATE MAILED: 05/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/626,662

Applicant(s)

WANG ET AL.

Examiner

Nguyen N Hanh

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/25/04 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "dynamic thrust bearing" in claim 7, "a substantially concave arched side" in claim 18 and "a substantially convex arched side" in claim 19 must be shown or the features canceled from the claims. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Fig. 4 of the present invention and page 7 of the specification disclose the loading section 70 can be located at the top end of the stator, top side of the stator 20 is coupled with the lubrication unit 90. However, rotor 81 as shown in Fig.

Art Unit: 2834

4 is coupled to the fixed lubrication unit instead of coupling with the shaft and it is not understood how the rotor can rotate when it is coupled with a fixed part.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,3,5,12,14,16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ritts.

Regarding claim 1, Ritts discloses a magnetic suspension bearing (Fig. 8) adopted for use on a rotational device which consists of a stator (114), a spindle (116) and a base dock for holding the stator (bottom plate), the spindle being rotationably coupled with the stator through the magnetic suspension bearing, the magnetic suspension bearing comprising: two magnetic ring sets each including a stator magnetic unit (110 and 112) abutting a top side and a bottom side of the stator and a spindle magnetic unit (118 and 120) coupled on two ends of the spindle corresponding to the stator magnetic unit to generate repulsive magnetic forces against the stator magnetic unit and allow the spindle to space from the stator at a selected distance in normal conditions, and a loading section (a section corresponding to section 16 in Fig. 1) located at one end of the spindle to hold the spindle.

Regarding claim 3, Ritts also discloses a magnetic suspension bearing wherein the loading section is located on the bottom end of the spindle and is interposed between the spindle and the base dock.

Regarding claim 5, Ritts also discloses a magnetic suspension bearing wherein the loading section is a friction pad.

Regarding claim 12, Ritts also discloses a magnetic suspension bearing wherein the spindle magnetic unit is magnetized radially, and the stator magnetic unit is magnetized radially in an opposite magnetized direction of the spindle magnetic unit.

Regarding claim 14, Ritts also discloses a magnetic suspension bearing wherein the spindle is in contact with the loading section on a single point.

Regarding claim 16, Ritts also discloses a magnetic suspension bearing wherein the loading section has a substantially flat top side.

Regarding claim 17, Ritts also discloses a magnetic suspension bearing wherein the spindle is in contact with loading section in the axial direction.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over et al. in view of Ritts.

Regarding claim 2, Ritts shows all limitations of the claimed invention except showing the stator magnetic unit and the spindle magnetic unit have a vertical difference less than 1 mm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the stator magnetic unit and the spindle magnetic unit having a vertical difference less than 1 mm, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 18 and 19, Ritts discloses the claimed invention except for showing the loading section has a substantially concave arched side or a substantially convex arched side in contact with the spindle.

It would have been an obvious matter of design choice to make the loading section has a substantially concave arched side or a substantially convex arched side, since such modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

5. Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ritts in view of Wehde et al.

Regarding claim 4, Ritts shows all limitations of the claimed invention except showing the magnetic suspension bearing wherein the loading section is located at the top side of the stator for the purpose of holding the spindle.

However, Wehde et al. discloses the magnetic suspension bearing wherein the loading section (14 in Fig. 2) is located at the top side of the stator for the purpose of holding the spindle.

Since Ritts and Wehde et al. are in the same field of endeavor, the purpose disclosed by Wehde et al. would have been recognized in the pertinent art of Ritts.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Ritts by locating the loading section at the top side of the stator as taught by Wehde et al. for the purpose of holding the spindle.

Regarding claim 15, Wehde et al. also show the magnetic suspension bearing wherein the loading section has a cavity to receive one end of the spindle (Fig. 1).

7. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ritts in view of Tokushima et al.

Regarding claim 6, Ritts shows all limitations of the claimed invention except showing a magnetic suspension bearing wherein the loading section is a lubrication unit which contains a small amount of oily substance to lubricate the spindle.

However, Tokushima et al. disclose a magnetic suspension bearing wherein the loading section is a lubrication unit which contains a small amount of oily substance (Fig.11) to lubricate the spindle for the purpose of reducing friction.

Since Ritts and Tokushima et al. are in the same field of endeavor, the purpose disclosed by Tokushima et al. would have been recognized in the pertinent art of Ritts.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Ritts by making the loading section as a

lubrication unit which contains a small amount of oily substance to lubricate the spindle as taught by Mc Hugh for the purpose of reducing friction.

Regarding claim 7, Tokushima et al. also show the magnetic suspension bearing wherein the lubrication unit is a dynamic thrust bearing

6. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ritts in view of Jeong.

Regarding claim 9, Ritts shows all limitations of the claimed invention except showing a magnetic suspension bearing further having a stator separation ring located between the stator magnetic units at the top side and the bottom side of the stator.

However, Jeong discloses a magnetic suspension bearing further having a stator separation ring (the ring on top of magnet 90 in Fig. 6) located between the stator magnetic units at the top side and the bottom side of the stator for the purpose of separating the permanent magnets.

Since Ritts and Jeong are in the same field of endeavor, the purpose disclosed by Jeong would have been recognized in the pertinent art of Ritts.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Ritts by using a stator separation ring located between the stator magnetic units at the top side and the bottom side of the stator as taught by Jeong for the purpose of separating the permanent magnets.

Regarding claim 8, it would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Ritts by using a



separation ring located between the spindle magnetic units at two ends of the spindle as taught by Jeong for the purpose of separating the permanent magnets.

Regarding claim 10, Jeong also shows a magnetic suspension bearing wherein the top side of the stator has a separator (the ring on the outside of magnet 60 in Fig. 6) to couple with the stator magnetic unit.

7. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ritts in view of Mc Hugh.

Regarding claims 11 and 13, Ritts shows all limitations of the claimed invention except showing a magnetic suspension bearing wherein the spindle magnetic unit is magnetized axially, and the stator magnetic unit is magnetized axially in the same magnetized direction of the spindle magnetic unit.

However, Mc Hugh discloses a magnetic suspension bearing wherein the spindle magnetic unit is magnetized axially, and the stator magnetic unit is magnetized axially in the same magnetized direction of the spindle magnetic unit (Fig. 1 and 2) for the purpose of forming a magnetic bearing.

Since Ritts and Mc Hugh are in the same field of endeavor, the purpose disclosed by Mc Hugh would have been recognized in the pertinent art of Ritts.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Ritts by making the spindle magnetic unit and stator magnetic unit axially magnetized as taught by Mc Hugh for the purpose of forming a magnetic bearing.

**Conclusion**

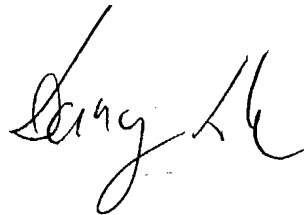
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (571) 272-2031. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberger, can be reached on (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

May 15, 2004



**DANGLE  
PRIMARY EXAMINER**